

A NEW SPECIES OF *PUNTIUS* (CYPRINIDAE : CYPRININAE)
FROM MANIPUR, INDIA¹

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(With two plates)

Key words: Cyprinidae, *Puntius manipurensis* sp.nov., *P. phutunio*, Manipur

Puntius manipurensis is described as a new cyprinid species of the genus *Puntius*, from Loktak lake, Manipur, India. It is characterised as follows: osseous, serrated principal spiny ray of dorsal fin, incomplete lateral line with 22-24 scales, 3.5 rows of scales in transverse series from the anteriormost portion of dorsal fin to lateral line, 3.5 rows between lateral line and pelvic insertion, without barbels, two spots on sides of body: a shoulder one on 3rd and 4th lateral line scales and a caudal one on 17th and 18th lateral line scales. The closest relative of *P. manipurensis* is *P. phutunio*. The affinities of these two species and other closely related species with a serrated dorsal fin ray, without barbels and with two spots on the lateral sides of the body, namely *ticto*, *punctatus* and *stoliczkanus* are discussed. A key to Indian *Puntius* species, including the new species with a strong osseous and serrated primary dorsal fin ray, is provided.

Cyprinid fishes of the genus *Puntius* are widely distributed in south and southeast Asia. The species of this genus have a single pair of maxillary barbels or none, normally 8 branched rays in dorsal fin, 30 or less vertebrae, scales thick with radii projecting from the focus to the margin like spokes on a wheel, without any posterior deflection in the lateral fields. *Puntius* species are small to tiny, less than 150 mm in total length. The *Puntius* from Manipur is very distinct from *phutunio* (Hora 1921, Menon 1954) which it was so far referred to, chiefly in its shape and colour markings, and also from all other *Puntius* species described previously (Day 1875-78, 1889; Jayaram 1991; Talwar and Jhingran 1991; Menon 1999), hence it is described here as a new species, *P. manipurensis*. The descriptions are based on eight specimens collected by Dr. W. Vishwanath from Loktak lake at Moirang, Manipur and deposited in the fish collections of the Zoological Survey of India, Chennai. Measurements follow standard

practices (Menon 1987), except for pre-pectoral distance, which is taken as the distance from snout tip to pectoral insertion; the mean values for the specimens are given first, followed in parenthesis by range as percentage.

Puntius manipurensis sp. nov.

(Plate 1, Figs. 1-3)

Holotype: F. (Fish) 4261, ZSI/SRS (Zoological Survey of India/Southern Regional Station), 40 mm Standard Length (SL), Loktak lake, Moirang, India, collected by W. Vishwanath, April, 1995.

Paratypes: F. 4262, ZSI/SRS, 7 specimens, 34-45 mm SL, data same as for holotype.

Diagnosis: A small elongate *Puntius* species with two spots on the body, a shoulder spot on 3rd and 4th lateral line scale rows and a caudal spot on 17th and 18th lateral line scales; scales edged dark; without barbels; ossified and denticulated dorsal spiny ray; incomplete lateral line with 24-25 scales and 3.5 scale rows between it and root of the pelvic fin.

Description: D. iii, 8; P. i. 13-14; V. i. 7, 1; A. iii, 5; C. 10+9. Body elongate, its depth 32.8 (29.7-35.1) percent of SL; head small, its

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length 29.1 (27.5-30.0) and its maximum depth 22.5 (20.9-23.8) of SL; snout short, smaller than eye, 24.3 (22.9-25.8) of head length (HL), 66.3 (60.4-73.7) of interorbital width; eyes large, visible from ventral side, diameter 27.1 (25.2-30.0) of head, 73.9 (67.4-79.5) of interorbital width; mouth semicircular and inferior; barbels absent.

Dorsal fin origin closer to caudal fin base than to tip of snout, starting after 8th scale of lateral line, slightly behind origin of ventral, predorsal length 52.9 (51.5-53.7), postdorsal length 51.0 (47.8-58.7) of SL; margin of dorsal almost straight, principal spiny ray of dorsal fin osseous and denticulated, with flexible portion much shorter than head, its stiff portion a little more than postorbital part, dorsal fin height 21.3 (19.5-23.8) of SL, 72.2 (60.1-81.0) of HL. Pectoral fin pointed in profile, almost reaches pelvic fin, length 21.0 (19.2-23.8) of SL, 72.2 (64.8-80.0) of HL, pre-pectoral distance 28.9 (27.8-30.4) of SL. Pelvic fin pointed, reaches anal opening, length 20.4 (19.2-22.6) of SL, 70.3 (63.9-77.0) of HL, pre-pelvic distance 49.7 (47.6-51.7) of SL. Anal fin laid flat, falls 2 scale rows short of caudal fin base, its length 51.4 (44.5-55.8) of HL, preanal distance 71.2 (70.2-72.5) of SL. Caudal fin as long as length of head, deeply forked, its lobe pointed; caudal peduncle depth 68.1 (62.5-78.6) of its length, 13.5 (12.6-14.4) of SL, its length 19.9 (16.6-21.7) of SL. Maximum length of body cavity 44.1 (42.1-46.1) of SL. Gill rakers broad and low, 7 on the lower arm of the first gill arch and 3 on the upper arm.

Scales large; lateral line incomplete, pored scales ceasing by 5th or 6th scales; scales along lateral line 22-24; 3.5 rows in transverse series from dorsal fin origin to lateral line, 3.5 from lateral line to pelvic fin base; predorsal scales 8-9.

Colour in preserved specimens: Males darker, a spot on 3rd and 4th lateral line scales, prominent in paler specimens, another spot on the 17th and 18th lateral line scales; scales edged

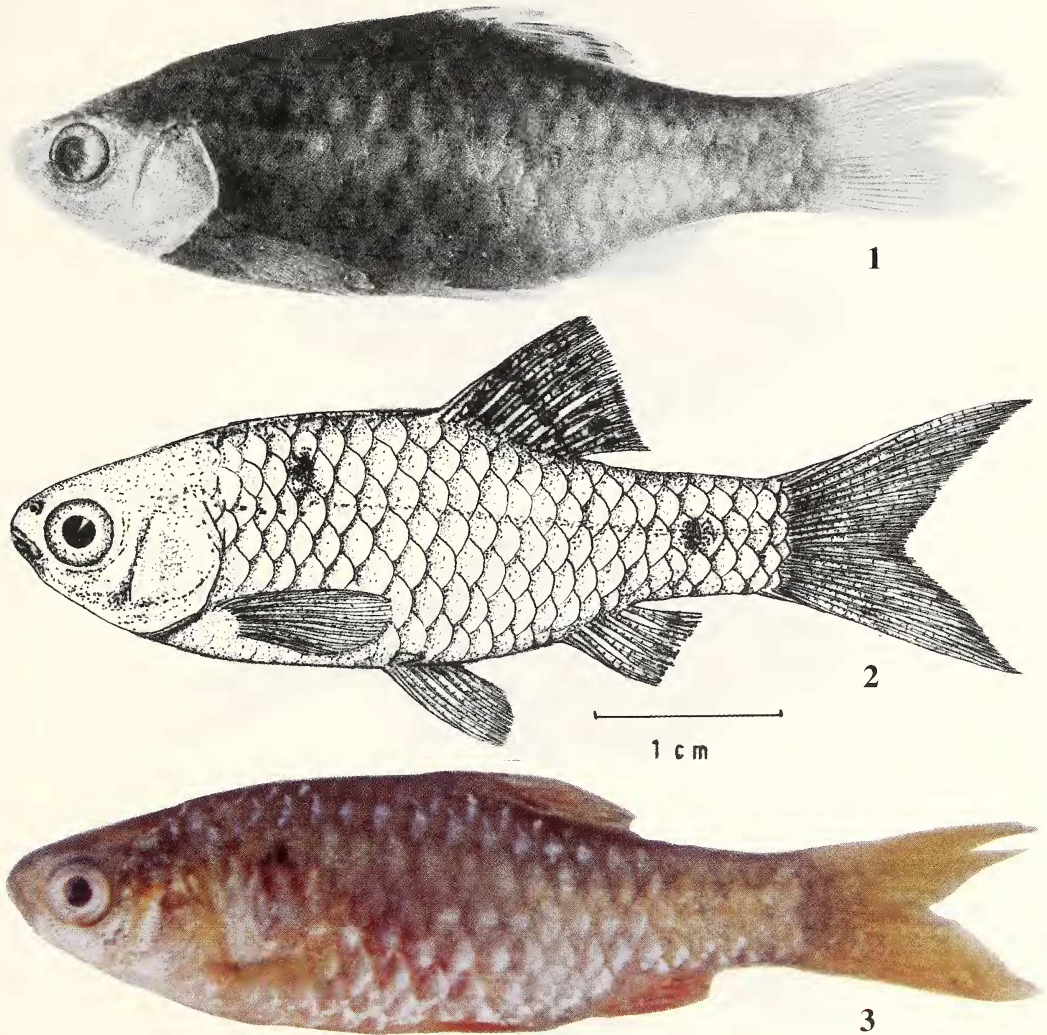
with pigments; two or three rows of spots on dorsal. Fresh specimens with yellowish fins; pelvic, anal and sides behind pectoral crimson. Maximum length: 45 mm SL.

Distribution: INDIA: Manipur, Loktak lake.

Etymology: The new species is named after the collection locality.

Remarks: Geographically, the closest relative of *P. manipurensis* seems to be *P. phutunio* (Hamilton 1822), which is known from West Bengal and Bangladesh. Like *P. phutunio*, it has an incomplete lateral line with 3.5 rows of scales between the origin of dorsal fin and the lateral line, with 3.5 rows of scales between lateral line and pelvic fin base. There is, however, no similarity in colour and body form (Plate 2, Figs. 1 and 4), *P. manipurensis* having an elongate body. Hora (1921) mistook the species for *P. phutunio* and described its distribution as given in the field guide by Annandale (vide Hora, *op. cit.*). The colour of the living specimen, as observed by Annandale, is "The dorsal surface brownish, deeply tinged with metallic green and dotted with black, sides metallic crimson, each scale edged with black; ventral surface silvery; pelvic, anal and caudal fins crimson; dorsal and pectoral bright olivaceous green with the rays more or less infuscated and with black spots on the dorsal. Iris crimson, lower part of cheek and operculum silvery white, densely speckled with black". *P. phutunio* is characterised by vertical bands (Plate 2, Fig. 4). In its lateral transverse rows *P. manipurensis* resembles *P. stoliczkanus* (Day 1871) known from Burma and Thailand, and *P. punctatus* (Day 1865) known from the southwest tip of peninsular India and Sri Lanka, but differs from them in having an incomplete lateral line.

The new species belongs to the *ticto* group of fishes with which it shares the following characters: absence of barbels, presence of osseous and serrated principal spiny ray in dorsal fin and two spots on the body, a shoulder spot



Figs. 1-3: 1. Lateral view of *Puntius manipurensis* sp. nov., 40.0 mm SL, Holotype, F. 4261, ZSI/SRS;
2. Lateral view of *P. manipurensis*, 35.5 mm SL;
3. Lateral view of fresh specimen of *P. manipurensis*, 35.5 mm SL.

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Figs. 1-4: 1. Lateral view of *P. manipurensis*, 40.0 mm SL;
2. Lateral view of *P. ticto*, 38.0 mm SL, F 2100, Minjur, Tamil Nadu.;
3. Lateral view of *P. punctatus*, 40.0 mm, SL, F 3466, Kottayam, Kerala;
4. Lateral view of *P. phutunio*, 24.0 mm SL, UMMZ 208868, Rangpur, Bangladesh.

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NEW DESCRIPTIONS

and a caudal spot. This species seems to have evolved in the Loktak lake from the same stock as *P. ticto* (4.5 rows of scales between lateral line and pelvic fin base) known to be widely distributed in India, *P. punctatus* in southern tip of peninsular India and Sri Lanka (Plate 2) and *P. stoliczkanus* (3.5 rows of scales between lateral line and pelvic fin base) in Burma and Thailand.

KEY TO THE *PUNTIUS* SPECIES WITH A STRONG, OSSEOUS AND SERRATED PRIMARY DORSAL FIN RAY

- 1. With 1 pair of maxillary barbels 2
- Without barbels 3
- 2. Body deep, 4 times in SL; no black spot above anterior anal base *P. fraseri* Hora & Misra
- Body elongate, 5 times in SL; a black spot above anterior anal base
..... *P. sharmai* Menon & Rema Devi
- 3. Lateral line (L1) scales 36 or more
..... *P. ambassis* (Day)
- L1 scales less than 36 4
- 4. L1 scales more than 30
..... *P. guganio* (Ham.)
- L1 scales less than 30 5
- 5. Lateral transverse (L tr) scale rows 5.5/5.5 ..
..... *P. conchoni* (Ham.)
- L tr rows fewer 6
- 6. L tr scale rows between L1 and pelvic fin base 4.5
..... *P. ticto* (Ham.)
- L tr scale rows between L1 and pelvic fin base less than 4.5 7
- 7. Lateral line complete 8
- Lateral line incomplete 10

- 8. L1 scale rows 20. *P. setnai* Chhapgar & Sane
- L1 scale rows more than 20 9
- 9. Two black spots on L1, one above 3rd scale and the 2nd a little before 19th L1 scale; dorsal fin not spotted *P. stoliczkanus* (Day)
- Two black spots on L1, one below commencement of L1 and the 2nd beyond 19th L1 scale; dorsal fin spotted in rows
..... *P. punctatus* (Day)
- 10. L1 with 24 or more scales ... *P. gelius* (Ham.)
- L1 with less than 24 scales 11
- 11. A horizontal line on sides of body and two distinct dark blotches on caudal peduncle
..... *P. shalynius* Yazdani & Talukdar
- No horizontal line on body or paired blotch on caudal peduncle 12
- 12. Body deep and banded; dorsal without spots, but with a band *P. phutunio* (Ham.)
- Body slender, not banded. but with two spots; dorsal with rows of spots
..... *P. manipurensis* sp. nov.

Comparative material *P. phutunio*: University of Michigan Museum of Zoology (UMMZ) 208868, 24 mm SL, Rangpur, Dharia river, Bangladesh, 2.iv.1978, coll. W. Rainboth & A. Rahman.

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REFERENCES

DAY, F. (1865): On the fishes of Cochin, on the Malabar coast of India. *Proc. Zool. Soc. London*: 302.

DAY, F. (1871): Monograph of Indian Cyprinidae. *Journ. Roy. Asiat. Soc. Bengal*: 328.

DAY, F. (1875-78): The Fishes of India; being a natural history of the fishes known to inhabit the seas and freshwaters of India, Burma and Ceylon. London, xx + 778 pp., 195 pls.

DAY, F. (1889): The Fauna of British India, including Ceylon and Burma. Fishes, 1, Taylor and Francis. London, pp. 548.

HAMILTON, F. (1822): An account of the fishes found in river Ganges and its branches. Archibald Constable and Co. and Hurst, Robinson & Co., Edinburgh and London. vii + 405 pp., 39 pls.

HORA, S.L. (1921): Fish and Fisheries of Manipur with observations on those of Naga Hills. *Rec. Indian Mus.* 22: 165-216.

NEW DESCRIPTIONS

- JAYARAM, K.C. (1991): Revision of the Genus *Puntius* Hamilton from the Indian Region (Pisces : Cypriniformes, Cyprinidae, Cyprininae). *Rec. Zool. Surv. India, Occ. pap. No. 135*: 1-178.
- MENON, A.G.K. (1954): Further observations on the fish fauna of the Manipur State. *Rec. Indian Mus. 52(1)*: 21-26.
- MENON, A.G.K. (1987): The Fauna of India and the Adjacent Countries. Pisces, 4, Pt I Homalopteridae. Zoological Survey of India, Calcutta, x + 259 pp.
- MENON, A.G.K. (1999): Checklist — Freshwater Fishes of India. Zoological Survey of India, *Occ. Pap. No. 175*, pp. 366.
- TALWAR, P.K. & JHINGRAN, ARUN G. (1991): Inland Fishes of India and Adjacent Countries. Vol. 1. Oxford and IBH Publ., New Delhi, pp. 541.

